CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/SAND-Gradation/2016-17 : 07.04.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. R. Shivaram,**
#4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.

*** Name of Work** : Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on : 06.04.2016

Date of Testing : 07.04.2016

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.00	90-100	90-100	90-100	95-100
2.36	75.50	60-95	75-100	85-100	95-100
1.18	56.50	30-70	55-90	75-100	90-100
600 Micron	28.50	15-34	35-59	60-79	80-100
300 Micron	13.50	5-20	8-30	12-40	15-50
150 Micron	4.50	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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VISHWANATH. I.A.
Chief Executive Officer

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/AGG/GR/2016-17 : 07.04.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. R. Shivaram,**
#4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.

*** Name of Work** : Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm)

Sample Received on : 06.04.2016

Date of Testing : 07.04.2016

Total Wt. of Aggregates in gms= **7000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.14	95-100	85-100
20	39.89	30-70	0-20
10	21.14	10-35	0-5
4.75	4.21	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/AGG/GR/2016-17 : 07.04.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. R. Shivaram,**
#4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.

*** Name of Work** : Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

*** Reference** : BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (20mm)

Sample Received on : 06.04.2016

Date of Testing : 07.04.2016

Total Wt. of Aggregates in gms= **5000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS :383-1970 (RA- 2007)	
		Graded	Single Sized
40	100	100	100
20	97.50	95-100	85-100
10	33.50	25-55	0-20
4.75	5.40	0-10	0-5

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits

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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/CC Solid Block/2016-17 : 11.04.2016

TEST REPORT ON SOLID CONCRETE BLOCKS

*** Customer** : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. R. Shivaram,**
#4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.

*** Name of the Work** : Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016

Sample Received on : 06.04.2016

Date of Testing : 11.04.2016

Size of Blocks : 400mm x 200mm x 200mm

Cross Sectional Area : 80000 mm^2

Technical Reference : IS: 2185 (Part 1) - 2005

No. of Blocks Tested : 08

Sl.No.	Block ID	Wt. in Kg	Failure load (KN)	Compressive strength (N/mm^2)	Requirement as per IS 2185 (Part 1) - 2005
1	Block 1	34.25	257.3	3.22	Minimum required Compressive Strength of Individual Units 3.20 N/mm^2
2	Block 2	35.20	259.3	3.24	
3	Block 3	34.26	260.2	3.25	
4	Block 4	35.15	261.2	3.27	
5	Block 5	34.19	262.5	3.28	
6	Block 6	35.16	263.1	3.29	
7	Block 7	34.89	258.5	3.23	
8	Block 8	34.25	259.8	3.25	

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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/Pre Cast Slab/2016-17 18.04.2016

TEST REPORT ON CONCRETE CORE (PRE CAST SLAB)

* Name of Customer	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
* Name of Agency	:	**Mr. R. Shivaram,** #4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.
* Name of work	:	Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
Reference	:	BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016
Techinical Reference	:	IS:516-1959 (Reaffirmed 2008), SP-24:1983.
Sample ID	:	Pre cast slab
Sample Received on	:	11.04.2016
Date of Testing	:	18.04.2016

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	79.00	0.390	2514.25	1.58	0.955	32.00	16.30	17.60	16.81	21.01
2	50.00	80.00	0.396	2521.01	1.60	0.960	32.85	16.73	18.07	17.35	21.68
3	50.00	81.00	0.403	2533.90	1.62	0.965	33.65	17.14	18.51	17.86	22.33

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Job No.: CTCE/BBMP/W.No.14/RS/WMM/Gradation/2016-17 : 04.05.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Mr. R. Shivaram,**
#4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.

Name of Work : Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016

Date of Testing : 04.05.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8115**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	290	290	3.6	96.4	95-100
22.4	2515	2805	34.6	65.4	60-80
11.2	1180	3985	49.1	50.9	40-60
4.75	1020	5005	61.7	38.3	25-40
2.36	990	5995	73.9	26.1	15-30
0.600	920	6915	85.2	14.8	8-22
0.075	700	7615	93.8	6.2	0-8

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4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/QB/2015-16 10.05.2016

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. R. Shivaram,** #4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.
*NAME OF THE WORK	:	Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	06.05.2016
DARE OF TESTING	:	10.05.2016

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	64	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	47	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	302	Min. 220

*Information is furnished by the Customer/Representative.

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/W.No.14/RS/BC/Bitumen/2016-17 12.05.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. R. Shivaram,** #4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.
NAME OF THE WORK	Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016
SAMPLE I/D	Roads at Vijayalakshmi layout, Ward No.14.
DATE OF TESTING	12.05.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

Note:

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Þ The results indicated above are based on the tests carried out on the samples at site

Þ Any Query regarding the report must be reported within 30 days from the date of testing

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 # 23/14, 7th Cross, 3rd Stage,
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Job No.: CTCE/BBMP/W.No.14/RS/CSR-04/005b/CEMENT/2016-17 Date: 07.04.2016

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer**, T. Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. R. Shivaram,** #4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.
*NAME OF THE WORK	:	Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
*REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	06.04.2016
PERIOD OF TESTING	:	06.04.2016 to 07.04.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	140 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	490 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

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Job No: CTCE/BBMP/W.No.14/RS/BC/Bitumen/2016-17 12.05.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. R. Shivaram,** #4/13, Avalamma Choultry Layout, Magadi road, Bangalore – 23.
NAME OF THE WORK	Improvements to roads and drains at Vijayalakshmi Layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2016-17 Dated: 06.04.2016
SAMPLE I/D	Roads at Vijayalakshmi layout, Ward No.14.
DATE OF TESTING	12.05.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.32	9.54	9.54	90.46	79-100
9.5	32.21	6.78	16.32	83.68	70-88
4.75	69.69	14.67	30.99	69.01	53-71
2.36	68.12	14.34	45.33	54.67	42-58
1.18	51.23	10.79	56.12	43.88	34-48
0.6	52.31	11.01	67.13	32.87	26-38
0.3	46.31	9.75	76.88	23.12	18-28
0.15	41.22	8.68	85.56	14.44	12-20
0.075	40.22	8.47	94.03	5.97	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.62	7.51	7.51	92.49	79-100
9.5	46.36	9.78	17.30	82.70	70-88
4.75	65.31	13.78	31.07	68.93	53-71
2.36	71.22	15.03	46.10	53.90	42-58
1.18	74.32	15.68	61.78	38.22	34-48
0.6	43.31	9.14	70.92	29.08	26-38
0.3	33.12	6.99	77.90	22.10	18-28
0.15	31.25	6.59	84.50	15.50	12-20
0.075	38.21	8.06	92.56	7.44	4-10

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